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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL R. BERRIGAN and ERIC M. MOORE

Appeal 2016-000151
Application 12/810,859[1]
Technology Center 1700

Before ADRIENE LEPIANE HANLON, CATHERINE Q. TIMM, and JAMES C. HOUSEL, *Administrative Patent Judges*.

PER CURIAM.

DECISION ON APPEAL

A. STATEMENT OF THE CASE

Appellants filed an appeal under 35 U.S.C. § 134(a) from the Examiner's decision finally rejecting claims 1, 4, 6, 8, 9, 11, 14, 17, 23, 25, 26, 28, and 29.[2]

We have jurisdiction under 35 U.S.C. § 6(b).[3]

We REVERSE.

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[1] According to Appellants, the real party in interest is 3M Company. Appeal Br. 3.
[2] Claim 13 was cancelled in an amendment dated Jan. 5, 2015. The amendment was entered in the Advisory Action dated Jan. 13, 2015. Claims 5, 30, 32, 45, 50, and 58 have been withdrawn from consideration and are not before us on appeal.
[3] Our decision refers to the Specification filed Apr. 19, 2013 (Spec.), Appellants' Appeal Brief (Appeal Br.) filed Apr. 9, 2015, the Examiner's Answer (Ans.) mailed July 16, 2015, and Appellants' Reply Brief (Reply Br.) filed Sept. 16, 2015.

The claims on appeal are directed to composite nonwoven fibrous webs (*see, e.g.*, claim 1). Appellants disclose that nonwoven fibrous webs have been used as absorbent articles for surface cleaning, for gas and/or liquid absorption in filtration media, and as barrier materials. Spec. p. 1, ll. 16–18. Although fine fibers may be desirable in some applications requiring high absorbency, fine fibers have a tendency to collapse or crush during handling, which decreases porosity and the surface area available for absorption and increases the pressure drop of a fluid passing through the nonwoven article. *Id.* at p. 1, ll. 18–25. In view of this, Appellants disclose it is desirable to minimize degradation of or damage to nonwoven fibrous webs, to provide liquid filtration articles having a high amount of active absorbent and/or absorbent particulates without increasing a pressure drop across the filtration articles, to provide particulate-loaded nonwoven fibrous webs that effectively retain particulates within the fiber matrix, and to provide liquid filtration articles having improved service life and filtration effectiveness. *Id.* at p. 1, l. 30 to p. 2, l. 6.

Independent claim 1 is illustrative and is reproduced below from the Claims Appendix of the Appeal Brief. The limitations at issue are italicized.

> 1. A composite nonwoven fibrous web comprising:
>
> *an embedded phase of particulates forming a substantially continuous three-dimensional network of particulates, wherein all of the particulates in the embedded phase collectively make-up a population of particulates including all particulates in the nonwoven fibrous web*, wherein each individual particulate of the population of particulates of the embedded phase is in surface to surface contact with at least one other particulate of the population of particulates of the embedded phase, further *wherein each individual particulate of the population of particulates of the embedded phase is inorganic*; and
>
> a matrix phase comprising a population of fibers forming a three-dimensional network around the embedded phase, wherein the

> composite nonwoven fibrous web has a thickness and exhibits a Solidity of less than 10%.

Appeal Br. 17.

The claims on appeal stand rejected as follows:

(1) claims 1, 4, 6, 9, 11, 14, 17, 23, 25, and 26 under 35 U.S.C. § 103(a) as being unpatentable over Chhabra[4] in view of Saaski[5] and Markell;[6]

(2) claim 8 under 35 U.S.C. § 103(a) as unpatentable over Chhabra in view of Saaski and Markell and further in view of Berrigan;[7] and

(3) claims 28 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Chhabra in view of Saaski and Markell and further in view of Schultink;[8]

B. DISCUSSION

1. Rejection over Chhabra, Saaski, and Markell

Claims 1, 4, 6, 9, 11, 17, 23, 25, and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chhabra in view of Saaski and Markell. We select claim 1 as representative for discussing the issues on appeal.

The Examiner finds Chhabra discloses particulates entrapped in nonwoven webs of nanofibers. Ans. 3. The particulates may be superabsorbent polymers and odor-controlling particulates, such as activated charcoal or active carbon, which the Examiner finds to be inorganic. *Id.* The Examiner finds Chhabra does not disclose that the particulates form a substantially continuous three-dimensional

[4] Chhabra et al., US 2005/0266760 A1, published Dec. 1, 2005 ("Chhabra").
[5] Saaski et al., US 2003/0224932 A1, published Dec. 4, 2003 ("Saaski").
[6] Markell et al., US 5,328,758 A, issued July 12, 1994 ("Markell").
[7] Berrigan et al., US 2003/0216099 A1, published Nov. 20, 2003 ("Berrigan").
[8] Schultink et al., US 5,871,836 A, issued Feb. 16, 1999 ("Schultink").

network in which each individual particulate is in surface to surface contact with at least one other particulate, as recited in claim 1. *Id.*

The Examiner finds Saaski discloses filtration media including granules of agglomerated binder coated with active particles. *Id.* The active particles may be activated carbon, which the Examiner previously found to be inorganic. *Id.* at 4. Figure 4 of Saaski is reproduced below.

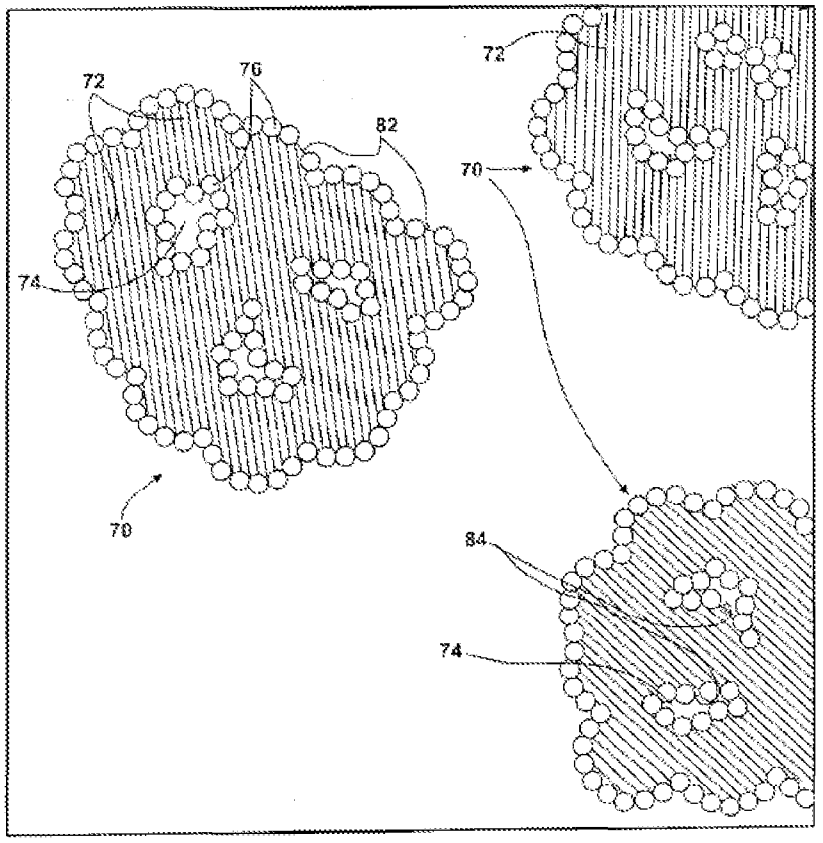

FIG. 4

Figure 4 depicts an embodiment of filtration media

Figure 4 depicts filtration media that has been compressed and reseparated into granules 70. Saaski ¶¶ 20 and 35. The granules 70 include active particles 76 adhering to a binder core 72 formed by binder that has been compressed into the binder core 72. *Id.* ¶ 35. Citing Figure 4, the Examiner finds all of the active particles 76[9] are in surface to surface contact with at least one other particle. Ans. 4. The Examiner concludes it would have been obvious to form the nonwoven web of Chhabra with the granule structure of Saaski so activated carbon particulates are bonded in surface to surface contact with at least one other particulate, as disclosed by Saaski, and to provide the web with improved properties. *Id.*

Appellants argue the language of claim 1 "makes absolutely clear that all of the particulates in the embedded phase collectively make-up a population of particulates including *all particulates in the nonwoven fibrous web*, and each individual particulate of the population of particulates of the embedded phase is inorganic." Appeal Br. 11 (emphasis added). Appellants contend the "comprising" language of claim 1 cannot be interpreted in a manner that contradicts this (*e.g.,* by interpreting the "comprising" language to permit organic particulates). *Id.*

Appellants' arguments are supported by the record. The language of claim 1 requires that "the particulates in the embedded phase collectively make-up a population of particulates including *all* particulates in the nonwoven fibrous web" (emphasis added). Although claim 1 uses "comprising" language, *all* particulates

[9] Although the Examiner states the granules 70 are in surface to surface contact with one another at page 4 of the Answer, we understand the Examiner's position to be that the active particles 76 of the granules 70 are in surface to surface contact, based upon the Examiner's findings and explanation at pages 10–11 and 13–14 of the Answer.

in the nonwoven fibrous web are included in the particulates of the embedded phase and these particulates must be inorganic.[10] Thus, all particulates in the nonwoven web must be inorganic. "A claim must be read in accordance with the precepts of English grammar." *In re Hyatt*, 708 F.2d 712, 714 (Fed. Cir. 1983).

Moreover, Appellants assert the Examiner has misconstrued the term "particulate." *Id.* Appellants' Specification defines "particle" or "particulate" as meaning "a small distinct piece or individual part of a material in finely divided form." *Id.* at 11–12 (citing Spec. p. 5, ll. 22–25). A particulate may also be "a collection of individual particles associated or clustered together in finely divided form," thus meaning particles "may clump, physically intermesh, electro-statically associate, or otherwise associate to form particulates," such as "in the form of agglomerates of individual particles." *Id.* at 12 (citing Spec. p. 5, ll. 25–29). Based on this definition, Appellants contend the active particles 76 and binder 72 of Saaski would be particulates and the granules 70 would also be particulates because they are agglomerates of individual particles. Appeal. Br. 12. Because the binder 72 is made of organic thermoplastic polymers and the granules 70 include the binder 72, Appellants contend the binder 72 and the granules 70 are not inorganic particulates as recited in claim 1. *Id.* at 12–13. Appellants assert Chhabra and Markell[11] do not remedy this deficiency in Saaski. *Id.* at 13.

During prosecution before the Examiner, the claim language should be given its broadest reasonable meaning of the words in their ordinary usage as they would

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[10] The Examiner also concludes that the "particulates" of claim 1 are limited to those having a median diameter of less than 1 micrometer in view of an election of species set forth in a response dated August 13, 2012. Ans. 12. We do not agree because claim 1 is generic to the species identified in the Office Action mailed July 13, 2012 (i.e., (i) particulates having a median diameter of at least one micrometer and (ii) particulates having a median diameter of less than one micrometer).

[11] The Examiner relies on Markell as teaching the claimed thickness. Ans. 5.

be understood by one of ordinary skill in the art, taking into account any definitions or enlightenment contained in the written description of Appellants' Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). Here, we agree with Appellants that page 5, lines 22–29 of the Specification defines a structure for the "particulates" of claim 1.

Turning to the structure of Saaski cited by the Examiner, we find Figure 4 includes two components meeting the structural definition of "particulate" set forth in the Specification. First, there are the active particles 76. As shown in Figure 4 of Saaski, the active particles 76 are each a small distinct piece or individual part of a material in finely divided form, as stated in the Specification, and can be made of an inorganic material, such as activated carbon.[12] Thus, the active particles 76 meet the requirements for "particulates" set forth in claim 1.

Granules 70 also meet the definition of "particulate" set forth in the Specification because the granules 70 are agglomerates of individual particles (i.e., activated particles 76 and binder 72, which is in the form of compressed particles[13]), as argued by Appellants. However, the granules 70 include the binder 72, which is a polymer.[14] Saaski ¶ 37. Therefore, although the granules 70 of Saaski meet the structural definition of "particulate" set forth in Appellants' Specification, the granules 70 are not inorganic particulates, as required by claim 1.

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[12] Saaski ¶ 36.
[13] Saaski abstract and ¶¶ 35, 38, 39.
[14] The Examiner contends that binder 72 in Figure 4 of Sasski was not relied on in the rejection. However, binder 72 enables the surface to surface contact of particles 76, and in the process, forms agglomerates or particulates 70. In contrast to binder 72, Appellants disclose that individual particles may, for example, electro-statically associate to form the requisite surface to surface contact recited in claim 1. Spec. 5, ll. 25–27.

As a result, *all* of the particulates depicted in Figure 4 of Saaski are not inorganic particulates as claimed. *See* Reply Br. 7.

For these reasons, we do not sustain the § 103(a) rejection of claim 1 over the combination of Chhabra, Saaski, and Markell. Claims 4, 6, 9, 11, 17, 23, 25, and 26 depend from claim 1. Therefore, we also do not sustain the § 103(a) rejection of claims 4, 6, 9, 11, 17, 23, 25, and 26.

2. Rejections of claims 8, 28, and 29 under 35 U.S.C. § 103(a)

The § 103(a) rejections of claims 8, 28, and 29 include Berrigan and Schultink as additional references but include the same deficiencies as the § 103(a) rejection of claim 1 over the combination of Chhabra, Saaski, and Markell. Although the § 103(a) rejections for claims 8, 28, and 29 rely on additional prior art references, the Examiner does not rely on these added references to remedy the deficiencies in the rejection of claim 1 over the combination of Chhabra, Saaski, and Markell. Therefore, we do not sustain the § 103(a) rejections of claims 8, 28, and 29.

C. DECISION

The decision of the Examiner is reversed.

REVERSED